

CLAIMS

What is claimed is:

1. A composition for reducing the buildup of snow and ice on a surface, comprising:
a sugar-water mixture having approximately 15 to 80 percent by weight of a sugar solid, wherein the sugar solid contains approximately 2-60 percent by weight of a monosaccharide.
2. The composition of claim 1, wherein the sugar-water mixture contains approximately 40 percent by weight of the sugar solid and approximately 60 percent by weight of water.
3. The composition of claim 1, further comprising a steepwater solubles-water admixture containing approximately 20 to 80 percent by weight of steepwater solubles and approximately 20 to 80 percent by weight of water.
4. The composition of claim 1, further comprising a corrosion inhibitor.
5. The composition of claim 4, wherein the corrosion inhibitor is sodium citrate.
6. The composition of claim 4, further comprising a brine mixture containing approximately 15 to 60 percent salt.
7. The composition of claim 6, wherein the composition comprises about 50-95 percent by volume of the brine mixture, 5-50 percent by volume of the sugar-water mixture, and 0.5-5 percent by volume of the corrosion inhibitor.
8. The composition of claim 6, wherein the salt is selected from the group consisting of magnesium chloride, sodium chloride, calcium chloride, and potassium chloride.
9. The composition of claim 1, wherein the sugar-water mixture is corn syrup.

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1 10. The composition of claim 9, wherein a sugar profile of the corn syrup is about 2-60 percent dextrose, 2-60 percent maltose, 2-60 percent maltotriose, and 15-80 percent polymers of dextrose.

6 11. The composition of claim 9, wherein a sugar profile of the corn syrup is about 14 percent dextrose, 11-12 percent maltose, 10-11 percent maltotriose, and 64 percent polymers of dextrose.

12. The composition of claim 1, wherein the sugar solid contains approximately 6-40 percent by weight of the monosaccharide.

13. The composition of claim 1, wherein the sugar solid contains approximately 12-18 percent by weight of the monosaccharide.

11 14. The composition of claim 1, wherein the sugar solid contains approximately 14 percent by weight of the monosaccharide.

15. A composition for reducing the buildup of snow and ice on a surface, comprising:
a de-icing agent containing a sugar solid, wherein the sugar solid contains
approximately 2-60 percent by weight of a monosaccharide; and
16 water.

16. The composition of claim 15, wherein the sugar solid contains approximately 12-18 percent by weight of the monosaccharide.

17. The composition of claim 16, further comprising a salt selected from the group consisting of magnesium chloride, sodium chloride, calcium chloride, and potassium
21 chloride.

18. The composition of claim 17, further comprising a corrosion inhibitor.

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- 1 19. A composition for reducing the buildup of snow and ice on a surface, comprising:
a de-icing agent containing a sugar solid, wherein the sugar solid contains
approximately 2-60 percent by weight of a monosaccharide; and
a corrosion inhibitor.
- 6 20. The composition of claim 19, further comprising a salt selected from the group
consisting of magnesium chloride, sodium chloride, calcium chloride, and potassium
chloride.
21. The composition of claim 19, wherein the sugar solid contains approximately 12-18
percent by weight of the monosaccharide.
- 11 22. The composition of claim 19, wherein the sugar solid contains approximately 14
percent by weight of the monosaccharide.
23. The composition of claim 19, wherein the sugar solid is mixed with water to form a
sugar-water mixture, and wherein the composition contains approximately 1-10 percent of
the corrosion inhibitor and 90-99 percent of the sugar-water mixture.
- 16 24. A composition for reducing the buildup of snow and ice on outdoor surfaces,
comprising:
a mixture of:
approximately 15-50 percent by weight on a dry basis of a sugar solid, wherein the
sugar solid contains approximately 2-60 percent by weight of a monosaccharide;
approximately 60-90 percent by weight on a dry basis of a salt; and
21 approximately 0.05-2 percent by weight on a dry basis of a corrosion inhibitor.
25. The composition of claim 24, further comprising water.

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1 26. A composition for reducing the buildup of snow and ice on a surface, comprising:
 a sugar-water mixture having approximately 15 to 80 percent by weight of a sugar
 solid, wherein the sugar solid contains approximately 2-60 percent by weight of a
 monosaccharide; and

 a brine, wherein the brine contains 15-40% salt by weight.

6 27. The composition of claim 26, further comprising a corrosion inhibitor.

28. The composition of claim 27, wherein the composition contains approximately 50-
95 percent by volume of the brine, 5-50 percent by volume of the sugar-water mixture, and
0.5-5 percent by volume of the corrosion inhibitor.

29. The composition of claim 26, wherein the sugar-water mixture is corn syrup.

11 30. The composition of claim 29, wherein the corn syrup is 25 DE corn syrup.

31. The composition of claim 29, wherein the corn syrup is 36 DE corn syrup.

32. A composition for reducing the buildup of snow and ice on an outdoor surface,
comprising:

 a sugar-water mixture having approximately 15 to 80 percent by weight of a sugar
16 solid, wherein the sugar solid contains approximately 2-60 percent by weight of a
 monosaccharide; and

 a corrosion inhibitor.

33. A composition for reducing the buildup of snow and ice on outdoor surfaces
comprising:

21 (a) a steepwater solubles-water admixture;

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1 (b) a sugar-water mixture combined with the steepwater solubles-water
admixture; and

 (c) a brine mixture added to the steepwater solubles-water admixture and the
sugar-water mixture.

34. The composition of claim 33, wherein the steepwater solubles-water admixture
6 contains approximately 30-70 percent by weight of steepwater solubles and 30-70 percent
by weight of water.

35. The composition of claim 33, wherein the sugar-water mixture contains
approximately 15-80 percent by weight of sugar.

36. The composition of claim 33, wherein the brine mixture contains approximately 30-
11 70 percent salt.

37. The composition of claim 33, wherein the composition contains about 80 percent by
weight of the brine mixture, 6 to 7 percent by weight of the steepwater solubles-water
admixture, and 13 to 14 percent by weight of the sugar-water mixture.

38. The composition of claim 33, wherein the composition contains about 50-95
16 percent by volume of the brine mixture, 0.5-20 percent by volume of the steepwater
solubles-water admixture, and 5-50 percent by volume of the sugar-water mixture.

39. A method for reducing the buildup of snow and ice on an outdoor surface,
comprising:

 applying to the outdoor surface a composition comprising:

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1 a sugar-water mixture having approximately 15 to 80 percent by weight of a sugar
solid, wherein the sugar solid contains approximately 2-60 percent by weight of a
monosaccharide.

40. The method of claim 39, wherein the composition further comprises a corrosion
inhibitor.

6 41. The method of claim 40, wherein the corrosion inhibitor is sodium citrate.

42. The method of claim 40, wherein the composition further comprises a brine mixture
containing approximately 15 to 60 percent salt.

43. A composition for reducing the buildup of snow and ice on an outdoor surface,
comprising:

11 a sugar-water mixture having approximately 15 to 80 percent by weight of a sugar
solid, wherein the sugar solid contains approximately 2-60 percent by weight of a
monosaccharide;

 a corrosion inhibitor; and

 a steepwater solubles-water admixture.

16 44. The composition of claim 43, wherein the corrosion inhibitor is sodium citrate,
wherein the steepwater solubles-water admixture is 40-60 percent solids, and wherein the
sugar-water mixture is corn syrup having about 50-70 percent solids.

45. The composition of claim 44, wherein the composition contains about 90-95
percent by volume of the sugar-water mixture, 4-9 percent by volume of the steepwater
21 solubles-water admixture, and 0.5-2 percent by volume of the corrosion inhibitor.

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